REMARKS

The Office Action, dated June 23, 2005, contained two sets of pages 2 and 3. The first set of pages 2 and 3 are directed to claim rejections pursuant to 35 U.S.C. §§ 102 and 103. The second set of pages 2 and 3 are directed to claim rejections under only 35 U.S.C. § 102. It appears that the second set of pages 2 and 3 were attached in error as it was not signed. However, in order to be thorough, Applicants have responded to the second, more broadly based, 35 U.S.C. § 102 rejection from the second set of pages 2 and 3 and the 35 U.S.C. § 103 rejection from the first set of pages 2 and 3.

1. Claim 1 has been amended to recite "wherein before the catalyst has reached an advanced stage of ageing, reaction conditions comprise a reaction temperature above 255 °C and an olefin content of the feed in the range of from above 25 mole-% to at most 80 mole-%, relative to the total feed; and maintaining the reaction conditions for at least a period of time which is sufficient to effect a cumulative olefin oxide production of at least 1000 kmole of olefin oxide per m^3 catalyst bed." This amendment is based on original claims 5 and 8 as well as page 5, lines 1-21 and page 8, lines 6-14 of the application text. Claims 5 and 8 have been amended to recite "5000 kmole of olefin oxide per m^3 catalyst bed." These amendments are based on page 5, lines 13-21 and page 8, lines 6-14 of the application text. New Claim 24 has been added to make clear that the present invention includes continuing the epoxidation process after the catalyst has reached an advanced stage of ageing. New Claim 24 is based on page 5, lines 10-13 and page 8, lines 4-6. Claims 11, and 13-22 have been canceled. Applicants reserve the right to take such action as deemed necessary with respect to the canceled claims.

2. Claims 1-23 were rejected under 35 U.S.C. 102(b) as being anticipated by Boeck et al U.S. Patent No. 5,905,161 (hereinafter '161), Evans et al U.S. Patent No. 6,372,925 (hereinafter '925) or Grosch et al U.S. Patent No. 6,518,441 (hereinafter '441). Applicants respectfully submit that each of the individual cited references do not disclose each and every limitation of the current set of claims.

The '441 reference discloses reacting an organic compound having a C-C double bond with a hydroperoxide. *U.S. Patent No.* 6,518,441, col. 2, ll. 16-29. The reference does not disclose an oxidation reaction feed containing an olefin and oxygen. Also, the '441 reference does not disclose maintaining the reaction temperature above 255 °C for a period of time which is sufficient to effect an olefin oxide production of at least 1000 kmole of olefin oxide per m^3 catalyst bed. Thus, claims 1 and 23 are not anticipated by

the '441 reference. Since claims 2-10, 12 and 24 depend from claim 1, they also are not anticipated by the '441 reference.

The '925 reference discloses increasing the concentration of ethylene in the reaction mixture when the catalyst has reached an advanced age. *U.S. Patent No.* 6,372,925, col. 2, l. 49 – col. 3, l. 9. The '161 reference discloses a process for reactivating silver-containing catalysts, which have become deactivated due to coking, by heating the catalyst in the presence of water vapor and oxygen at temperatures from 100 to 400 °C. *U.S. Patent No.* 5,905,161, col. 2, ll. 5-12. The '925 and '161 references do not disclose maintaining the reaction temperature above 255 °C for a period of time which is sufficient to effect an olefin oxide production of at least 1000 kmole of olefin oxide per m^3 catalyst bed. Thus, claims 1 and 23 are not anticipated by the '925 or the '161 references. Since claims 2-10, 12 and 24 depend from claim 1, they also are not anticipated by the '925 or '161 references.

Applicants respectfully request the rejection under 35 U.S.C. 102(b) be withdrawn.

3. Claims 1-23 were rejected under 35 U.S.C. 103(a) as being obvious over Evans et al U.S. Patent No. 6,372,925 in view of Grosch et al U.S. Patent No. 6,518,441. This rejection is respectfully traversed. The MPEP § 2143 states:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.
>
> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

The '925 reference relates to the production of ethylene oxide by reacting ethylene and oxygen. *U.S. Patent No.* 6,372,925, col. 2, ll. 49-55. The '925 reference teaches improving the activity and selectivity of an aged high selectivity catalyst by increasing the ethylene concentration in the reaction feed when the catalyst has reached an advanced age. *Id.* col. 2, l. 49 – col. 3, l. 14.

The '441 reference relates to a method for oxidizing an organic compound containing at least one C-C double bond using a hydroperoxide compound. The '441

reference teaches regenerating the catalyst when the activity falls below a certain threshold value. *U.S. Patent No.* 6,518,441 at col. 12, ll. 7-17. The regeneration step first heats the catalyst in the presence of a stream of inert gas to a temperature from about 250 to about 800 °C. *Id.* at col. 12, ll. 42-48. Once the temperature is reached, oxygen is introduced into the stream of inert gas in a regulated manner such that the temperature is maintained between 400 to 800 °C. *Id.* at col. 12, ll. 44-57. This regeneration process restores the activity of the catalyst by burning off the mostly organic components deposited on the catalyst during the hydroperoxide-based oxidation process. *Id.*

There is no suggestion or motivation to modify the '925 reference to arrive at the present invention in view of the teachings of the '441 reference. The '925 reference is directed to improving the selectivity and activity of an aged catalyst by increasing the ethylene content in the reaction feed. The examples in the '925 reference teach away from the present invention. In particular, Table I of the '925 reference demonstrates that increasing the ethylene content in the reaction feed does not substantially improve the performance (selectivity as well as activity) of a fresh catalyst. The '441 reference is directed to improving the activity of a deactivated catalyst by burning off organic components deposited on the catalyst during the hydroperoxide-based oxidation process. Neither reference suggests improving the performance of a catalyst, in particular the activity, the selectivity, and the ageing related performance decline, by using a reaction temperature above 255 °C and an olefin content in the feed of above 25 mole-%, relative to the total feed, before the catalyst has reached an advanced stage of ageing. *Application text*, p. 3, ll. 29-34 and claim 1. Therefore, there is no suggestion or motivation to combine the '925 and '441 references to arrive at the present invention.

Additionally, there is no reasonable expectation of success. First, one of ordinary skill in the art would not consider the '441 reference in combination with the '925 reference since the '441 reference relates to a different oxidation process which uses a hydroperoxide compound instead of oxygen. Second, as discussed hereinbefore, the examples in the '925 reference show no substantial performance improvement from increasing the ethylene content in the reaction feed when using a fresh catalyst at typical use temperatures of at most 255 °C. The '441 reference discloses oxidation reaction temperatures ("Step (II)") in the range of from about 20 to about 120 °C and a molar ratio of organic compound containing at least one C-C double bond to the hydroperoxide compound of from about 100:1 to about 1:10, preferably from about 1:1 to about 6:1. *U.S. Patent No. 6,518,441* at col. 11, ll. 9-13 and col. 10, ll. 63-65. The elevated

temperatures disclosed in the '441 reference occur during the regeneration step for the deactivated catalyst ("Step (III)") which is carried out in the absence of the oxidation reaction feed. There is no suggestion in the '441 reference, why a regeneration temperature would be used as an oxidation temperature. Therefore, when combining the '925 and '441 references, there is no reasonable expectation of success in arriving at the present invention.

Further, the '925 and '441 references do not teach or suggest all the claim limitations. The references do not teach or suggest that before the catalyst has reached an advanced stage of ageing, reaction conditions comprise a reaction temperature above 255 °C and an olefin content of the feed in the range of from above 25 mole-% to at most 80 mole-%, relative to the total feed, and maintaining the reaction conditions for at least a period of time which is sufficient to effect a cumulative olefin oxide production of at least 1000 kmole of olefin oxide per m^3 catalyst bed.

In view of these arguments, Applicants believe that a *prima facie* basis for obviousness has not been established for Claims 1-23 and respectfully request that the rejection be withdrawn.

CONCLUSION

Allowance of Claims 1-24 of the present application is respectfully requested. If the examiner would like to discuss this case with Applicants' attorney, the Examiner is invited to contact Richard Lemuth at the phone number below.

Respectfully submitted,
WAYNE E. EVANS ET AL

By _____
Attorney, Richard F. Lemuth
Registration No. 30,081
(713) 241-3716

P. O. Box 2463
Houston, Texas 77252-2463